

E73-11065

CR-135521

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SEVENTH BI-MONTHLY PROGRESS REPORT  
UNIVERSITY OF ALASKA  
ERTS-1 PROJECT 110-3  
September 30, 1973

TITLE OF INVESTIGATION: Identification, definition and mapping of terrestrial ecosystems in interior Alaska

PRINCIPAL INVESTIGATOR: J. H. Anderson. UN 592

PROBLEMS IMPEDING INVESTIGATION: None

PROGRESS REPORT:

1. Accomplishments during the reporting period:

a. A 1:63,360-scale vegetation map of part of test area no. 5 was drawn, using an enlargement of part of ERTS-1 scene 1033-21011. This map has yet to be labeled and transferred to the U.S. Geological Survey quadrangle of the same scale. To illustrate this work, a part of the unfinished map is presented on the following page.

b. A vegetation map at a scale of 1:1,000,000 was drawn for part of test area no. 5 and adjacent terrain, using the same scene. This map also is unfinished, but a preliminary version is presented on page 3.

c. Several new scenes were selected for study. At least partial growing season coverage for all test areas north of the Alaska Range except no. 4 is now available. These scenes are listed on the image descriptor forms.

d. Digital data CDU scenes were examined for test areas 5, 6 and 8.

e. A small interband ratio study involving sites in test area no. 6 was made using the CDU.

f. In a meeting with project 2 personnel, all persons were brought up to date on the status of their ERTS activities.

2. Plans for the next reporting period:

The plans listed on page 16-17 of the recent semi-annual report for this project pertain.

SIGNIFICANT RESULTS:

1. Results of the mapping efforts are presented on pages 2 and 3. It is emphasized that these maps are unfinished.

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G8B

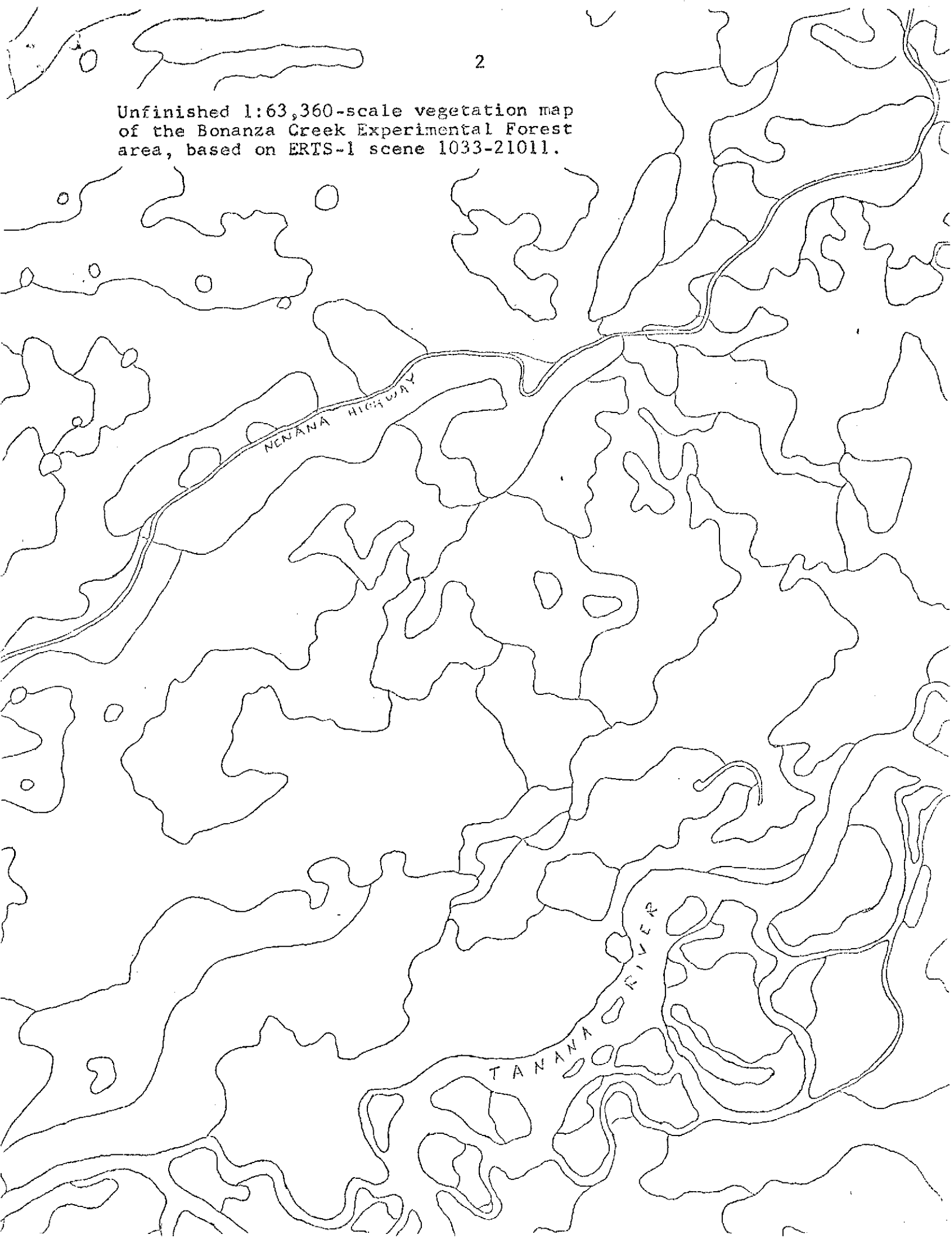
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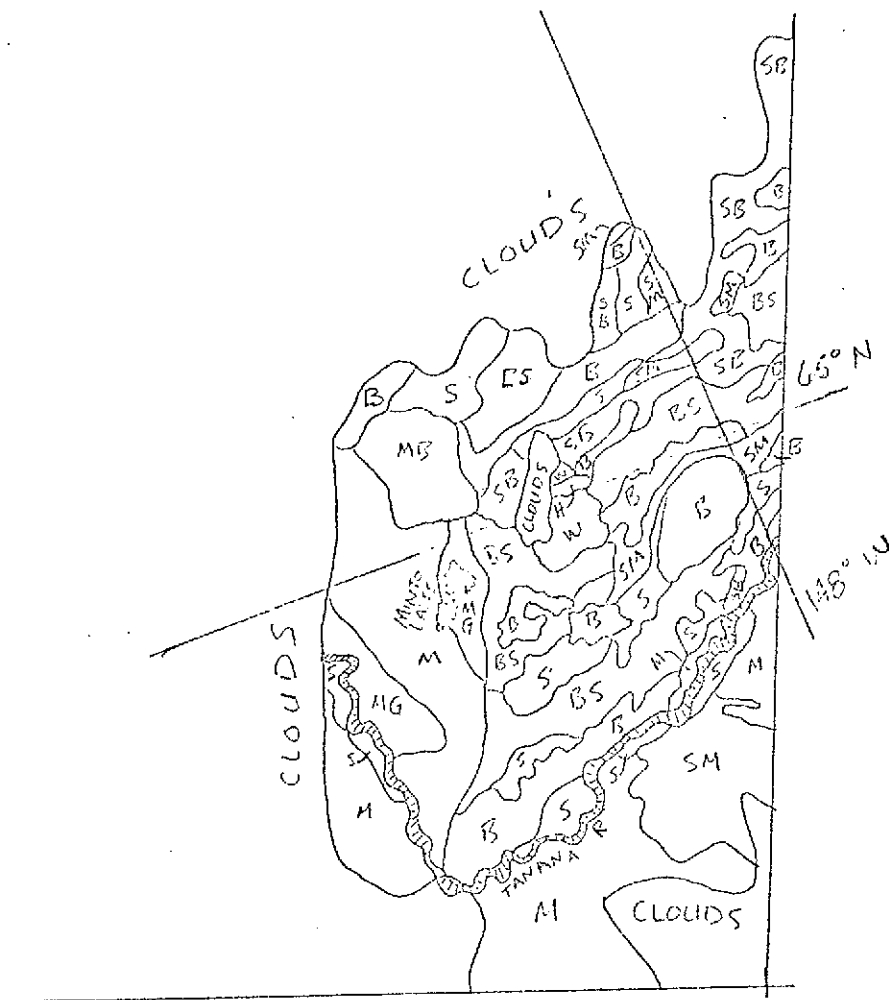
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(E73-11065) IDENTIFICATION, DEFINITION  
AND MAPPING OF TERRESTRIAL ECOSYSTEMS IN  
INTERIOR ALASKA Bimonthly Progress  
Report (Alaska Univ., Fairbanks.)

Unfinished 1:63,360-scale vegetation map  
of the Bonanza Creek Experimental Forest  
area, based on ERTS-1 scene 1033-21011.





Vegetation map of the Bonanza Creek Experimental Forest and vicinity at a scale of 1:1,000,000, based on ERTS-1 scene 1033-21011. See text for vegetation unit designations.

Brief designations:

B	Birch forest	H	Alpine tundra
S	Spruce forest	M	Muskeg and bog
BS	Birch-spruce forest	SM	Spruce muskeg
SB	Spruce-birch forest	MB	Muskeg with hardwoods
W	Scrub	MG	Muskeg with graminoids

Vegetation units recognized on the 1:1,000,00 scale map are as follows:

- B = Birch forest, with aspen a secondary admixture in many places and a dominant species on a few sites
- S = Spruce forest; mostly white spruce, but with black spruce a secondary to major admixture in many places and a dominant in some places
- BS = Birch-spruce forest; mosaics of stands of birch and spruce forest and mixedwood forests, where birch is more important areally
- SB = Spruce-birch forest; same, but with spruce the more important areally
- W = Scrub. Mostly willows; alders and shrub birches important in some areas
- H = Alpine tundra vegetation, comprising herbs, low-growing shrubs and sparsely vegetated areas
- M = Muskeg and bog: Low-lying, flat areas characterized by abundant mosses, including Sphagna, and by lichens, graminoids, forbs, low-growing shrubs and scattered black spruce
- SM = Spruce muskeg: Muskeg as above, but with black spruce a major component
- MB = Muskeg with broad-leaved trees and shrubs: Muskeg as above, with abundant water-courses and raised areas where birch, aspen, willows and alders occur
- MG = Muskeg with graminoids: Muskeg as above, in particularly poorly drained areas where woody species are less important and mosses and graminoids predominate

At this point, the mapping activities tend further to substantiate the belief that ERTS-1 imagery is a valuable mapping tool.

2. Some of the newly selected scenes show that vegetation interpretations can be refined through use of non-growing season imagery, particularly through the different spectral characteristics of vegetation lacking foliage and through the effect of vegetation structure on apparent snow cover.

3. It appears that digital color displays will permit spectral distinctions which might be overlooked or made only with uncertainty on photographic products.

4. No support was obtained for the hypothesis that similar interband ratios, from two areas apparently different spectrally because of different sun angles, would indicate similar surface features. However, attempts to test this hypothesis have so far been casual.

PUBLICATIONS: None

RECOMMENDATIONS: None

REVISED STANDING ORDERS: None

ERTS IMAGE DESCRIPTOR FORMS: See attached

DATA REQUESTS: None

## ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE September 30, 1973PRINCIPAL INVESTIGATOR J. H. AndersonGSFC 592ORGANIZATION University of Alaska

NDPF USE ONLY

D \_\_\_\_\_

N \_\_\_\_\_

ID \_\_\_\_\_

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
1283-20511				Aerial imagery used
1284-20565				Briaded stream
1338-20555				Brush
1374-20552				Conifer
1321-21012				Deciduous
1339-21011				Forest
1339-21013				Ground truth used
1341-21123				Hardwood forest
1342-21175				Highway
				Lake
				Mature vegetation
				Meander
				Muskeg
				River
				Timberline
				Tundra
				Urban area
				Vegetation

\*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

MAIL TO ERTS USER SERVICES  
 CODE 563  
 BLDG 23 ROOM E413  
 NASA GSFC  
 GREENBELT, MD. 20771  
 301-982-5408

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# ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE September 30, 1973

PRINCIPAL INVESTIGATOR J. H. Anderson

GSFC 592

ORGANIZATION University of Alaska

NDPF USE ONLY

D \_\_\_\_\_

N \_\_\_\_\_

ID \_\_\_\_\_

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
1286-21070				Aerial imagery used
1358-21061				Airfield
1376-21060				Alluvial plain
1340-21060				Bay
1342-21173				Coast
1358-21055				Coastal plain
1377-21112				Delta
1325-21230				Dormant vegetation
				Frozen lake
				Frozen soil
				Ground turth used
				Industrial area
				Mature vegetation
				Oil field
				permafrost
				river
				Road
				Tundra
				Vegetation

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SEVENTH BI-MONTHLY PROGRESS REPORT  
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ERTS-1 PROJECT 110-3  
September 30, 1973

TITLE OF INVESTIGATION: Identification, definition and  
mapping of terrestrial ecosystems in interior Alaska

PRINCIPAL INVESTIGATOR: J. H. Anderson. UN 592

DISCIPLINE: Environment

SUBDISCIPLINE: Other: Vegetation analysis, mapping and  
phenology

SUMMARY OF SIGNIFICANT RESULTS:

Two new, as yet unfinished vegetation maps are presented. These tend further to substantiate the belief that ERTS-1 imagery is a valuable mapping tool.

Newly selected scenes show that vegetation interpretations can be refined through use of non-growing season imagery, particularly through the different spectral characteristics of vegetation lacking foliage and through the effect of vegetation structure on apparent snow cover.

Scenes now are available for all test areas north of the Alaska Range except Mt. McKinley National Park.

No support was obtained for the hypothesis that similar interband ratios, from two areas apparently different spectrally because of different sun angles, would indicate similar surface features. However, attempts to test this hypothesis have so far been casual.